1025 Gender, Race, and Other Clinical Issues

Wednesday, March 27, 1996, Noon–2:00 p.m.
Orange County Convention Center, Hall E
Presentation Hour: 1:00 p.m.–2:00 p.m.

1025-91 Accuracy of SPECT Perfusion Imaging to Diagnose Multivessel Disease in Women as Compared to Men

Marshall L. Katz, Anne W. Moulton, Mark I. Travin, Lynne L. Johnson. *Rhode Island Hospital, Providence, RI; Roger Williams Medical Center, Brown University, Providence, RI*

Older women have a high prevalence of multivessel CAD and are likely to undergo pharmacological stress testing for evaluation for presence and/or extent of CAD because of their limited exercise tolerance. Dipyridamole SPECT imaging has been shown to be accurate for diagnosing CAD and useful in determining prognosis but the number of women reported in previous published studies has been small. Multivessel disease (MVD) identified by perfusion imaging relates to increased cardiac event rates. To evaluate the diagnostic accuracy of SPECT perfusion imaging in women as compared to men for identifying MVD, all sequential patients undergoing dipyridamole SPECT imaging over a 3 year period at one hospital and over a 6 month period at the other were identified and those undergoing coronary angiography within 6 months of the stress perfusion scan without intervening events were selected. There were 41 men and 42 women with average age of 67.7 ± 9.4 yrs for the men and 63 ± 9.4 yrs for the women. Both fixed and reversible defects were considered abnormal. A significant coronary stenosis was considered to be 70% or greater lumenal diameter narrowing. The sensitivity for detection of MVD was 71% for women and 70% for men (p = NS). Specificity for detection of MVD was 80% and 74% for women and for men respectively (p = NS). Diagnostic accuracy for detection of MVD was 72% and 73% for women and for men respectively (p = NS). The sensitivity for detecting vascular territories (LAD, LCX, RCA combined) for women was 75% and for men 63% (p = NS). Specificity for detecting combined vascular territories was 67% for women and 59% for men (p = NS). The diagnostic accuracy for detecting combined vascular territories was 71% for women and 61% for men (p = NS). In conclusion, in this population, there is no difference between men and women in the value of dipyridamole SPECT imaging for identifying patients with MVD.

1025-92 Effect of Ventricular Size on Accuracy of SPECT Thallium in Women: Utility of Gender and Size Based Normal Databases

Christopher L. Hansen, Deborah Crabbe, Sharon Rubin. *Temple University Hospital, Philadelphia, PA*

The accuracy of exercise thallium-201 (Tl) for diagnosing coronary artery disease (CAD) is lower in women (W) than in men (M). This may be due to smaller left ventricular (LV) size in W. We assessed the effects of LV size and whether a size and gender normal database could improve accuracy in W. We identified 416 patients (pts) undergoing SPECT Tl who had no documented history of MI, pathologic Q waves, history of CABG or nonischemic cardiomyopathy and underwent diagnostic catheterization within 45 days of the stress test or had < 5% pretest probability of CAD by Bayesian analysis. Those with < 50% stenosis at catheterization were classified as normal. A size index was generated from the short axis images. We defined a size ≤ 75 as small (S) and > 75 as large (L). Normal databases based on gender (G) or both size and gender (Sz) were created. SPECT images were quantitated using both databases and results compared by calculating the area (A) under the receiver operating characteristic curve. LV size was significantly greater in M than W (101 ± 28 vs 73 ± 21, p < 0.0001). The accuracy of SPECT Tl using the G nl database was marginally higher in M than W (A = 0.89 M vs 0.82 W, p = 0.11) despite similar numbers of stenosed vessels (1.9 ± 0.8 M vs. 1.8 ± 0.9 W, p = NS) and peak heart rates with exercise (phr) (131 ± 26 M vs. 133 ± 22 F, p = NS). The accuracy in S pts was much lower than L (A = 0.72 S vs. 0.92 L, p = 0.0001) despite similar number of stenosed vessels (1.7 ± 0.9 S vs. 1.9 ± 0.8 L, p = NS) and phr (131 ± 28 S vs. 132 ± L, p = NS). The use of the Sz normal databases did not improve accuracy in W (A = 0.82 G vs. 0.80 Sz, p = NS) or in S pts (A = 0.72 G vs. 0.70 Sz, p = NS). We conclude that 1) LV size has a greater effect on diagnostic accuracy than does gender. 2) the reported lower accuracy in W may be due to their smaller LV size 3) The use of size in the creation of normal databases does not improve accuracy of myocardial perfusion imaging in W.

1025-93 Influence of Race on Cardiac Outcomes and the Negative Predictive Value of Stress Myocardial Perfusion Imaging in 1,099 Angina Patients

D. Douglas Miller, Leslee J. Shaw, Henry G. Stratmann, Gary V. Heller. *St. Louis University School of Medicine & Veterans Administration Medical Centers, St. Louis, Missouri; Hartford Hospital, University of Connecticut, Hartford, Connecticut*

Improving cardiovascular outcomes in black pts at risk for coronary heart disease (CHD) requires better access to medical care through the early identification of significant CHD. To evaluate if racial differences exist in the prognostic value of stress myocardial perfusion imaging (MPI), 864 (79%) white and 235 (21%) black stable angina pts were followed for 13 ± 6 mos after rest & stress Tc-99m sestamibi tomography. Cardiac death (5.3 vs. 5.1%), nonfatal MI (2.6 vs. 2.1%), all cause death (7.9 vs. 11.1%) and MPI abnormality rates (64 vs. 61%) did not differ in white vs. black pts in this referral population (all p = NS). Cardiac event rates classified by normal (N) or abnormal (ABN) stress MPI and race are given below (*p < 0.05 vs. white pts: †p < 0.05 and ‡p = 0.01 vs. normal image):

	White patients		Black patients	
	N [n = 313]	ABN [n = 551]	N [n = 92]	ABN [n = 143]
Cardiac Death	2 (0.6%)	44 (8.0%)‡	1 (1.1%)	11 (7.7%)†
Nonfatal MI	1 (0.3%)	21 (3.8%)‡	1 (1.1%)	4 (2.8%)†
All Cause Death	13 (4.2%)	55 (10.0%)‡	10 (10.9%)*	16 (11.2%)

*p < 0.05 vs. white pts: †p < 0.05 and ‡p = 0.01 vs. normal image

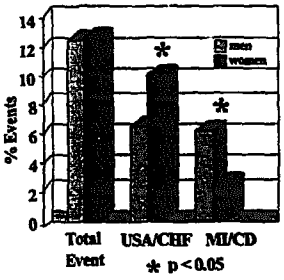
Annualized cardiac death or MI rates (2.2 vs. 0.9%) and all cause mortality were ≥ 2-fold greater in black pts with a normal MPI (10.9 vs. 4.2%; p < 0.05).

Conclusion: Abnormal stress sestamibi MPI accurately predicts cardiac events (death or MI) in black and white stable angina pts. A ≥ 2-fold excess of cardiac events and all cause mortality was observed in blacks with normal MPI, possibly as a result of comorbid non-CHD cardiovascular conditions in the black population.

1025-94 Abnormal Stress Tc-99m Sestamibi SPECT Imaging in Women vs Men: Same Management, Same Prognosis, Different Events

Maria D. Duca, Mark I. Travin, Steven D. Herman, Gregory M. Kline, Diane D. Demus, Gary V. Heller. *Hartford Hospital, Hartford, CT; Roger Williams Medical Center, Providence, RI*

The effect of gender upon the outcome of pts with an abnormal myocardial perfusion scan was evaluated in 2066 pts (1056 men, age 61 ± 12 and 1010 women, age 65 ± 11; p < 0.001) referred for exercise (1166) or dipyridamole (900) Tc-99m sestamibi SPECT imaging. Results were correlated with revascularization, unstable angina (USA), CHF, nonfatal MI, and cardiac death(CD), during a follow-up of 14 ± 8 months. Images were abnormal in 68.9% men and 39.2% women (p < 0.001); for those patients catheterization (24.3% men, 22.3% women) and revascularization (14.7% men, 12.7% women) were similar. In both groups, abnormal images correlated with an increased risk of cardiac events compared to normals, with a similar total event rate. However, men had significantly more nonfatal MI or CD, while women had more USA or CHF.



Conclusions: Women with abnormal Tc-99m sestamibi SPECT scans undergo revascularization as often as men, and an abnormal scan is equally predictive of cardiac events. However, in women, the events are more often unstable angina or heart failure, while men more often have non-fatal myocardial infarction or cardiac death.